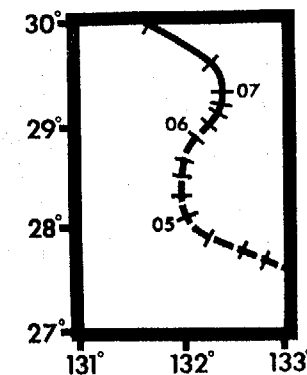


TYPHOON KIT

BEST TRACK TC-08W
03 AUG-11 AUG 1985
MAX SFC WIND 85 KT
MINIMUM SLP 959 MBS



DTG	SPEED	INTENSITY
0406Z	4	40
0412Z	3	45
0418Z	3	45
0500Z	2	50
0506Z	2	55
0512Z	2	55
0518Z	2	55
0600Z	2	60
0606Z	2	65
0612Z	2	70
0618Z	1	75
0700Z	1	80
0706Z	3	80
0712Z	7	80

Typhoon Kit was the first of seven tropical cyclones to reach warning status during August 1985. As was the case with its predecessor, Typhoon Jeff, Kit's recurvature posed considerable forecast problems. Like many WESTPAC tropical cyclones, Kit developed from an area of increased convection in the eastern portion of the monsoon trough.

As the remnants of Typhoon Jeff transited eastern China, satellite imagery early on 31 July showed that a possible circulation with good convective organization was rapidly forming north of Guam. This area of disturbed weather was developing at the northeast end of the monsoon trough, which at the time was linked to the trailing end of an old frontal boundary. The presence of this frontal boundary may have provided some initial low-level cyclonic shear to account for the system's rapid formation. Synoptic data indicated that a low-level circulation was present in the disturbed area with winds of 10 to 20 kt (5 to 10 m/s) and a MSLP of 1004 mb. The disturbance was mentioned on the Significant Tropical Advisory (ABEH PGTW) at 310451Z, but development was so rapid and the satellite signature so impressive, that a TCFA was issued by 310600Z. No significant additional development occurred overnight, however, as the system moved to the west-northwest. The first aircraft reconnaissance mission into the disturbance the following day found winds of only 20 kt (10 m/s) on the west side of a 1004 mb surface trough. The TCFA was reissued on the 1st as development still appeared likely. Follow-on aircraft reconnaissance was requested for the 2nd. This time the investigative mission located a 30 nm (56 km) wide surface circulation center with better organized winds of 10 to 20 kt (5 to 10 m/s) and a MSLP of 1005 mb, one millibar higher than on the previous day. A third TCFA followed at 020600Z as the disturbance tracked to the northwest. Aircraft reconnaissance was again requested.

The next aircraft reconnaissance mission flew into the system late on the 2nd, closed a circulation at 022204Z and reported that the MSLP had decreased to 1000 mb. Both aircraft and synoptic data now indicated 25 kt (13 m/s) surface winds near the center. JTWC responded by issuing the first warning on Tropical Depression 08W valid at 030000Z. During the next 24-hours the tropical depression slowly intensified while moving to the northwest along the southern periphery of a high pressure ridge located over Japan.

Tropical Depression 08W was upgraded to Tropical Storm Kit at 040000Z after aircraft reconnaissance

reported 35 kt (18 m/s) winds in all quadrants. Once upgraded, Kit continued to intensify and move slowly west-northwestward for the next 24 hours. Extended forecasts, based on FNOC's NOGAPS prognoses, indicated that Kit would move northwestward around the ridge which was expected to be displaced southeastward in advance of an approaching trough. This would result in Kit recurving to the northeast after 36 hours and eventually make landfall on Japan (Figure 3-08-1). However, the trough was weaker than forecast so instead of eroding the ridge and allowing Kit to recurve into the westerlies, the trough only temporarily weakened the ridge as it passed to the north. Kit responded to the trough passage by slowing and turning to the north on the 5th. Typhoon Kit then moved slowly northward through the 6th and into the 7th while continuing to intensify. By the 7th the trough had passed to the east and the tropical cyclone was left in the weakness between the subtropical ridge to the east and a weaker anticyclone over mainland China. With the passage of the mid-latitude trough over the subtropical ridge, the ridge began to build westward on the 7th. Kit responded by resuming a course to the west-northwest and intensifying (Figure 3-08-2). Kit attained its maximum intensity of 85 kt (44 m/s) at 080600Z southwest of Kyushu as it moved into the East China Sea. With FNOC's NOGAPS progs indicating another mid-latitude trough approaching from the west, and Kit definitely nearing the western end of the subtropical ridge axis, recurvature over South Korea, with extratropical transition in the Sea of Japan, appeared likely. After 081200Z, Kit began to weaken as relatively cooler and drier low-level air was entrained into the vortex's southwest quadrant.

Kit recurved south of the Korean peninsula and was barely at typhoon strength when landfall occurred on the southwest tip of South Korea early on the 10th. Kit still packed quite a punch, however. Torrential rains on the island of Cheju and southern coastal Korea caused extensive property and crop damage. At least ten people were reported missing or killed. Additionally a Department of Defense communications site in the area received an estimated 1.5 million dollars damage. With extratropical transition in progress, Kit rapidly lost strength while accelerating northeastward into the Sea of Japan. Extratropical transition was completed and JTWC issued the final warning on Kit at 110000Z. Subsequent warnings on the extratropical remnants of Kit were contained in the NAVOCEANCOMCEN GUAM Northwest Pacific Extratropical Wind Warning bulletins.

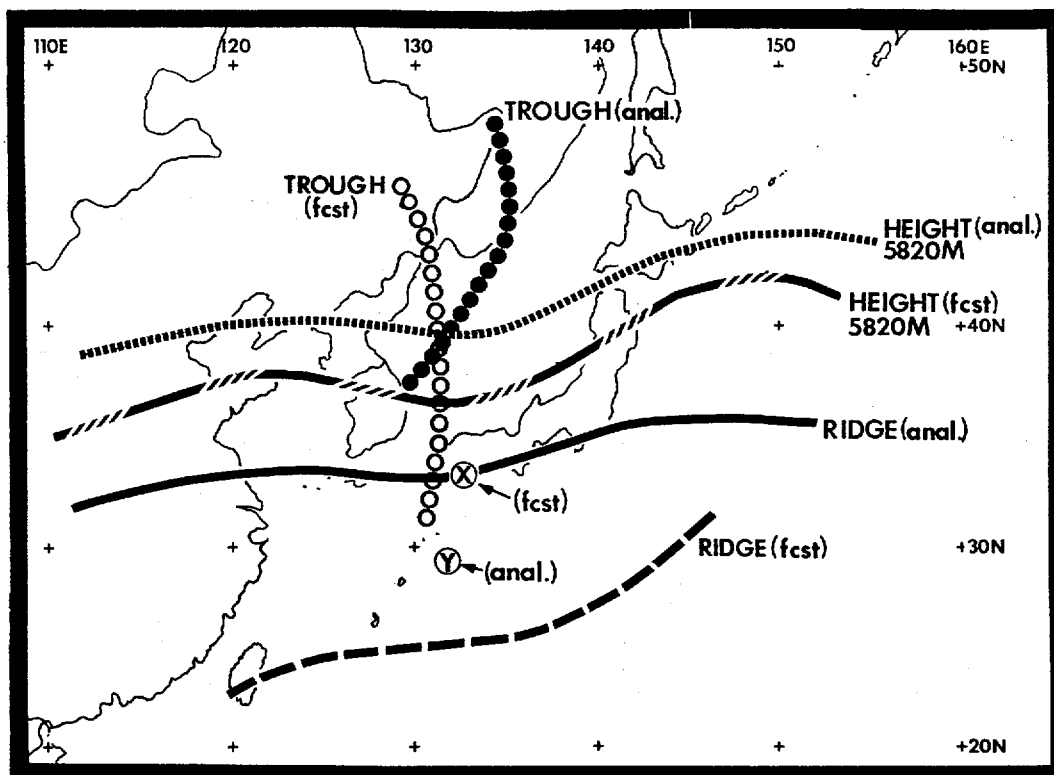


Figure 3-08-1. Comparison of 500mb 48-hour prognosis with verifying 500mb analysis. This chart depicts the major 500mb features available from the 48-hour prognosis valid 060000Z August: ridge axis (dashed line), trough line (open dots), 5280 meter height isopleth (- - - - -), and forecast warning point (X). The verifying 500mb analysis is shown for 060000Z August: ridge axis (solid line), trough line (solid dots), 5280 meter height isopleth (.....), and Best Track position (Y) for Kit. In retrospect, with the 48-hour prognosis and the location of the forecast warning position (X) - north of the ridge (forecast) and east of the trough (forecast) - a recurvature scenario looks valid. The tropical cyclone is an immediate threat to Japan. However, with the verifying analysis, Kit's position (Y) remains south of the ridge (analysis) and the trough (analysis). This is not favorable for recurvature. This pattern suggests weakened steering flow, with slow and erratic tropical cyclone movement - which is what occurred on the 6th.

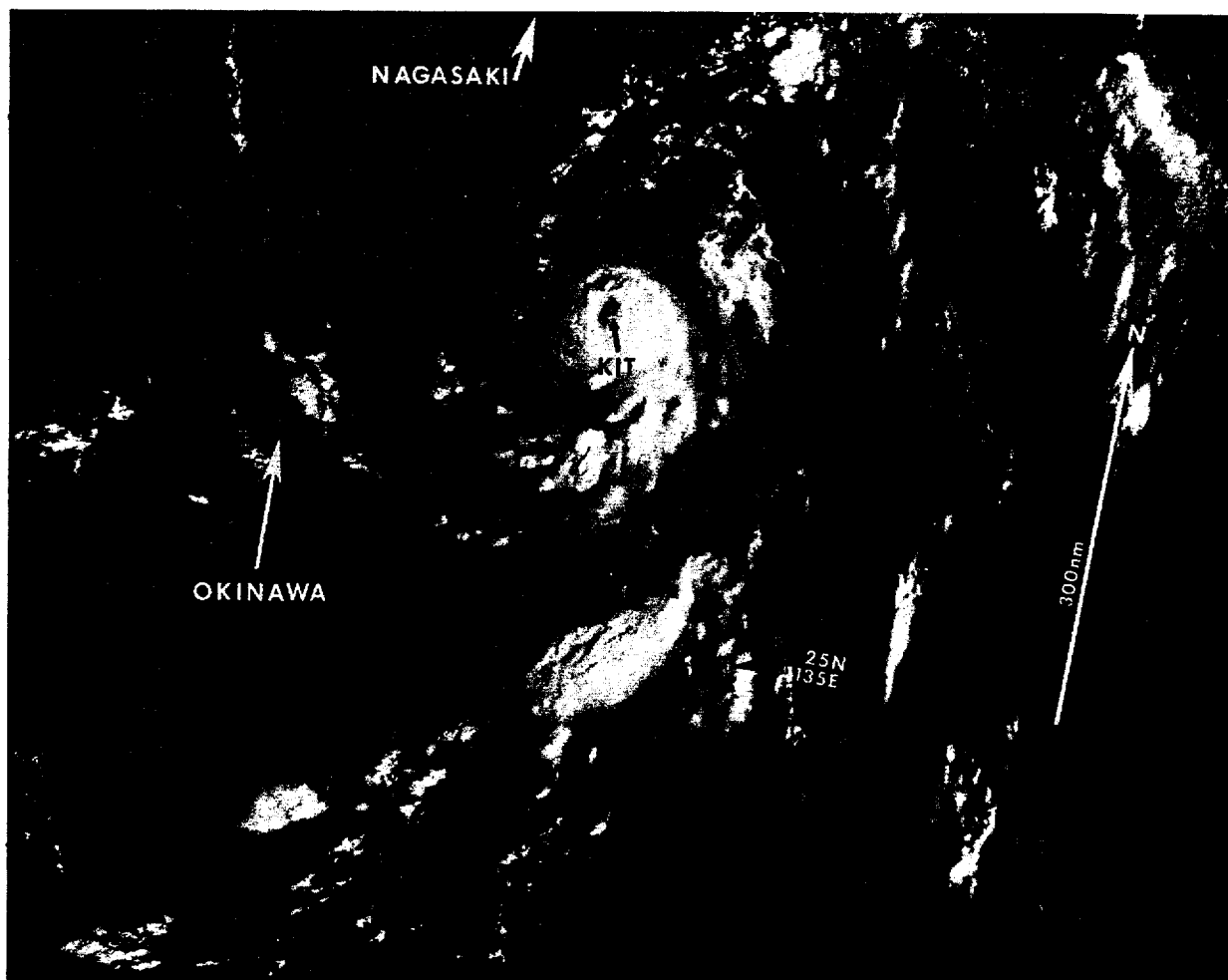


Figure 3-08-2. Typhoon Kit near maximum intensity south of the island of Kyushu, Japan. Kit remained a very compact storm for much of its lifetime, with the over-30 kt (15 m/s) and over-50 kt (26 m/s) wind radii remaining smaller than normal (070028Z August DMSP visual imagery).